

**Amendments to the Claims**

Please cancel claims 156-157, 495-510, 512-514, 516-521, 523-546, 548-550, 552-557, and 559-566 without prejudice.

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims**

1-566 (Cancelled).

567. (Previously presented): A system configured to design cardiac instruments, comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

create a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart;

evaluate motion of at least one portion of at least one feature of one or more first images of heart tissue; and

assess asynergy of the heart tissue.

568. (Previously presented): A system configured to design cardiac instruments, comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

create a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart;

assign at least one reference point to at least two first images of the heart tissue;

evaluate a relative movement of at least one of the reference points between at least two first images of the heart tissue; and

assess a viability of the heart tissue.

569. (Previously presented): A system configured to design cardiac instruments, comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

create a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart;

determine at least a first and second volume of a portion of the heart tissue and blood flow through a portion of the heart; and

assess a mitral regurgitation with a provided velocity of a fluid through at least a portion of the aorta.

570. (Previously presented): A computer-readable medium configured to store program instructions, wherein the program instructions are executable to implement a method to design cardiac instruments, comprising:

creating a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart;

evaluating motion of at least one portion of at least one feature of one or more first images of heart tissue; and

assessing asynergy of the heart tissue.

571. (Previously presented): A computer-readable medium configured to store program instructions, wherein the program instructions are executable to implement a method to design cardiac instruments, comprising:

creating a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart;

assigning at least one reference point to at least two first images of the heart tissue;

evaluating a relative movement of at least one of the reference points between at least two

first images of the heart tissue; and  
assessing a viability of the heart tissue.

572.(Previously presented): A computer-readable medium configured to store program instructions, wherein the program instructions are executable to implement a method to design cardiac instruments, comprising:

creating a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart;

determining at least a first and second volume of a portion of the heart tissue and blood flow through a portion of the heart; and

assessing a mitral regurgitation with a provided velocity of a fluid through at least a portion of the aorta.

573.(New): The system of claim 567, wherein the pattern is created automatically by at least one of the computer programs based on at least some user input.

574.(New): The system of claim 567, wherein the first image comprises a plurality of features, and wherein at least one of the features comprises a physiological factor.

575.(New): The system of claim 567, wherein at least one of the implants comprises a reinforcing device, an annuloplasty ring, a suture, or a valve.

576.(New): The system of claim 567, wherein at least one of the instruments comprises a shaper, and wherein the shaper is configurable to expand to a predetermined shape and size substantially similar to the size and shape of an appropriate left ventricle.

577.(New): The system of claim 567, wherein at least one of the instruments comprises a guide.

578.(New): The system of claim 577, wherein the guide comprises an overlay, and wherein the overlay comprises indicia configurable to assist a surgical procedure during use.

579.(New): The system of claim 567, wherein one or more computer programs are further executable to extrapolate at least a portion of at least one feature from at least one first image of human heart tissue.

580.(New): The system of claim 567, wherein one or more computer programs are further executable to:

use at least two first images of human heart tissue to create at least a second image of the heart tissue, wherein at least a portion of the second image appears at least three-dimensional.

581.(New): The system of claim 567, wherein one of the dimensions comprises time or at least one physiological factor.

582.(New): The system of claim 567, wherein at least one of the computer programs is further executable to:

compare a contrast between two or more sections in at least one first image; and  
assess a viability of the heart tissue.

583.(New): The system of claim 567, wherein at least one of the computer programs is further executable to:

evaluate a curvature of at least a section of a portion of a heart comprising the heart tissue; and  
assess a shape of at least the portion of the heart.

584.(New): The system of claim 567, wherein at least one of the computer programs is further executable to:

assign at least one reference point to at least two first images of the heart tissue;  
evaluate a relative movement of at least one of the reference points between at least two first images of the heart tissue; and  
assess a viability of the heart tissue.

585.(New): The system of claim 567, wherein at least one of the computer programs is further executable to:

determine at least a first and second volume of a portion of the heart tissue and blood flow through a portion of the heart; and

assess a mitral regurgitation with a provided velocity of a fluid through at least a portion of the aorta.

586.(New): The system of claim 568, wherein the pattern is created automatically by at least one of the computer programs based on at least some user input.

587.(New): The system of claim 568, wherein the first image comprises a plurality of features, and wherein at least one of the features comprises a physiological factor.

588.(New): The system of claim 568, wherein at least one of the implants comprises a reinforcing device, an annuloplasty ring, a suture, or a valve.

589.(New): The system of claim 568, wherein at least one of the instruments comprises a shaper, and wherein the shaper is configurable to expand to a predetermined shape and size substantially similar to the size and shape of an appropriate left ventricle.

590.(New): The system of claim 568, wherein at least one of the instruments comprises a guide.

591.(New): The system of claim 590, wherein the guide comprises an overlay, and wherein the overlay comprises indicia configurable to assist a surgical procedure during use.

592.(New): The system of claim 568, wherein one or more computer programs are further executable to extrapolate at least a portion of at least one feature from at least one first image of human heart tissue.

593.(New): The system of claim 568, wherein one or more computer programs are further executable to:

use at least two first images of human heart tissue to create at least a second image of the heart tissue, wherein at least a portion of the second image appears at least three-dimensional.

594.(New): The system of claim 568, wherein one of the dimensions comprises time or at least one physiological factor.

595.(New): The system of claim 568, wherein at least one of the computer programs is further executable to:

compare a contrast between two or more sections in at least one first image; and  
assess a viability of the heart tissue.

596.(New): The system of claim 568, wherein at least one of the computer programs is further executable to:

evaluate motion of at least one portion of at least one feature of one or more first images of heart tissue; and  
assess asynergy of the heart tissue.

597.(New): The system of claim 568, wherein at least one of the computer programs is further executable to:

evaluate a curvature of at least a section of a portion of a heart comprising the heart tissue; and  
assess a shape of at least the portion of the heart.

598.(New): The system of claim 568, wherein at least one of the computer programs is further executable to:

determine at least a first and second volume of a portion of the heart tissue and blood flow through a portion of the heart; and  
assess a mitral regurgitation with a provided velocity of a fluid through at least a portion

of the aorta.

599.(New): The system of claim 569, wherein the pattern is created automatically by at least one of the computer programs based on at least some user input.

600.(New): The system of claim 569, wherein the first image comprises a plurality of features, and wherein at least one of the features comprises a physiological factor.

601.(New): The system of claim 569, wherein at least one of the implants comprises a reinforcing device, an annuloplasty ring, a suture, or a valve.

602.(New): The system of claim 569, wherein at least one of the instruments comprises a shaper, and wherein the shaper is configurable to expand to a predetermined shape and size substantially similar to the size and shape of an appropriate left ventricle.

603.(New): The system of claim 569, wherein at least one of the instruments comprises a guide.

604.(New): The system of claim 603, wherein the guide comprises an overlay, and wherein the overlay comprises indicia configurable to assist a surgical procedure during use.

605.(New): The system of claim 569, wherein one or more computer programs are further executable to extrapolate at least a portion of at least one feature from at least one first image of human heart tissue.

606.(New): The system of claim 569, wherein one or more computer programs are further executable to:

use at least two first images of human heart tissue to create at least a second image of the heart tissue, wherein at least a portion of the second image appears at least three-dimensional.

607.(New): The system of claim 569, wherein one of the dimensions comprises time or at least one physiological factor.

608.(New): The system of claim 569, wherein at least one of the computer programs is further executable to:

- compare a contrast between two or more sections in at least one first image; and
- assess a viability of the heart tissue.

609.(New): The system of claim 569, wherein at least one of the computer programs is further executable to:

- evaluate motion of at least one portion of at least one feature of one or more first images of heart tissue; and
- assess asynergy of the heart tissue.

610.(New): The system of claim 569, wherein at least one of the computer programs is further executable to:

- evaluate a curvature of at least a section of a portion of a heart comprising the heart tissue; and
- assess a shape of at least the portion of the heart.

611.(New): The system of claim 569, wherein at least one of the computer programs is further executable to:

- assign at least one reference point to at least two first images of the heart tissue;
- evaluate a relative movement of at least one of the reference points between at least two first images of the heart tissue; and
- assess a viability of the heart tissue.

612.(New): The computer-readable medium of claim 570, wherein the pattern is created automatically by at least some of the program instructions based on at least some user input.



613.(New): The computer-readable medium of claim 570, wherein at least one of the first images comprises a plurality of features, and wherein at least one of the features comprises a physiological factor.

614.(New): The computer-readable medium of claim 570, wherein at least one of the implants comprises a reinforcing device, an annuloplasty ring, a suture, or a valve.

615. (New): The computer-readable medium of claim 570, wherein at least one of the instruments comprises a shaper, and wherein the shaper is configurable to expand to a predetermined shape and size substantially similar to the size and shape of an appropriate left ventricle.

616.(New): The computer-readable medium of claim 570, wherein at least one of the instruments comprises a guide.

617.(New): The computer-readable medium of claim 570, wherein at least one of the instruments comprises a guide, wherein the guide comprises an overlay, and wherein the overlay comprises indicia configurable to assist a surgical procedure during use.

618.(New): The computer-readable medium of claim 570, wherein the program instructions are further executable to implement a method comprising:

extrapolating at least a portion of at least one feature from at least one first image of human heart tissue.

619.(New): The computer-readable medium of claim 570, wherein the program instructions are further executable to implement a method comprising:

using at least two first images of human heart tissue to create at least a second image of the heart tissue, wherein at least a portion of the second image appears at least three-dimensional.

620.(New): The computer-readable medium of claim 570, wherein one of the dimensions comprises time or at least one physiological factor.

621.(New): The computer-readable medium of claim 570, wherein the program instructions are further executable to implement:

- comparing a contrast between two or more sections in at least one first image; and
- assessing a viability of the heart tissue.

622.(New): The computer-readable medium of claim 570, wherein the program instructions are further executable to implement:

- evaluating a curvature of at least a section of a portion of a heart comprising the heart tissue; and
- assessing a shape of at least the portion of the heart.

623.(New): The computer-readable medium of claim 570, wherein the program instructions are further executable to implement:

- assigning at least one reference point to at least two first images of the heart tissue;
- evaluating a relative movement of at least one of the reference points between at least two first images of the heart tissue; and
- assessing a viability of the heart tissue.

624.(New): The computer-readable medium of claim 570, wherein the program instructions are further executable to implement:

- determining at least a first and second volume of a portion of the heart tissue and blood flow through a portion of the heart; and
- assessing a mitral regurgitation with a provided velocity of a fluid through at least a portion of the aorta.

625.(New): The computer-readable medium of claim 571, wherein the pattern is created automatically by at least some of the program instructions based on at least some user input.

626.(New): The computer-readable medium of claim 571, wherein at least one of the first images comprises a plurality of features, and wherein at least one of the features comprises a physiological factor.

627.(New): The computer-readable medium of claim 571, wherein at least one of the implants comprises a reinforcing device, an annuloplasty ring, a suture, or a valve.

628. (New): The computer-readable medium of claim 571, wherein at least one of the instruments comprises a shaper, and wherein the shaper is configurable to expand to a predetermined shape and size substantially similar to the size and shape of an appropriate left ventricle.

629.(New): The computer-readable medium of claim 571, wherein at least one of the instruments comprises a guide.

630.(New): The computer-readable medium of claim 571, wherein at least one of the instruments comprises a guide, wherein the guide comprises an overlay, and wherein the overlay comprises indicia configurable to assist a surgical procedure during use.

631.(New): The computer-readable medium of claim 571, wherein the program instructions are further executable to implement a method comprising:

extrapolating at least a portion of at least one feature from at least one first image of human heart tissue.

632.(New): The computer-readable medium of claim 571, wherein the program instructions are further executable to implement a method comprising:

using at least two first images of human heart tissue to create at least a second image of the heart tissue, wherein at least a portion of the second image appears at least three-dimensional.

633.(New): The computer-readable medium of claim 571, wherein one of the dimensions comprises time or at least one physiological factor.

634.(New): The computer-readable medium of claim 571, wherein the program instructions are further executable to implement:

- comparing a contrast between two or more sections in at least one first image; and
- assessing a viability of the heart tissue.

635.(New): The computer-readable medium of claim 571, wherein the program instructions are further executable to implement:

- evaluating motion of at least one portion of at least one feature of one or more first images of heart tissue; and
- assessing asynergy of the heart tissue.

636.(New): The computer-readable medium of claim 571, wherein the program instructions are further executable to implement:

- evaluating a curvature of at least a section of a portion of a heart comprising the heart tissue; and
- assessing a shape of at least the portion of the heart.

637.(New): The computer-readable medium of claim 571, wherein the program instructions are further executable to implement:

- determining at least a first and second volume of a portion of the heart tissue and blood flow through a portion of the heart; and
- assessing a mitral regurgitation with a provided velocity of a fluid through at least a portion of the aorta.

638.(New): The computer-readable medium of claim 572, wherein the pattern is created automatically by at least some of the program instructions based on at least some user input.

639.(New): The computer-readable medium of claim 572, wherein at least one of the first images comprises a plurality of features, and wherein at least one of the features comprises a physiological factor.

640.(New): The computer-readable medium of claim 572, wherein at least one of the implants comprises a reinforcing device, an annuloplasty ring, a suture, or a valve.

641. (New): The computer-readable medium of claim 572, wherein at least one of the instruments comprises a shaper, and wherein the shaper is configurable to expand to a predetermined shape and size substantially similar to the size and shape of an appropriate left ventricle.

642.(New): The computer-readable medium of claim 572, wherein at least one of the instruments comprises a guide.

643.(New): The computer-readable medium of claim 572, wherein at least one of the instruments comprises a guide, wherein the guide comprises an overlay, and wherein the overlay comprises indicia configurable to assist a surgical procedure during use.

644.(New): The computer-readable medium of claim 572, wherein the program instructions are further executable to implement a method comprising:

extrapolating at least a portion of at least one feature from at least one first image of human heart tissue.

645.(New): The computer-readable medium of claim 572, wherein the program instructions are further executable to implement a method comprising:

using at least two first images of human heart tissue to create at least a second image of the heart tissue, wherein at least a portion of the second image appears at least three-dimensional.

646.(New): The computer-readable medium of claim 572, wherein one of the dimensions comprises time or at least one physiological factor.

647.(New): The computer-readable medium of claim 572, wherein the program instructions are further executable to implement:

- comparing a contrast between two or more sections in at least one first image; and
- assessing a viability of the heart tissue.

648.(New): The computer-readable medium of claim 572, wherein the program instructions are further executable to implement:

- evaluating motion of at least one portion of at least one feature of one or more first images of heart tissue; and
- assessing asynergy of the heart tissue.

649.(New): The computer-readable medium of claim 572, wherein the program instructions are further executable to implement:

- evaluating a curvature of at least a section of a portion of a heart comprising the heart tissue; and
- assessing a shape of at least the portion of the heart.

650.(New): The computer-readable medium of claim 572, wherein the program instructions are further executable to implement:

- assigning at least one reference point to at least two first images of the heart tissue;
- evaluating a relative movement of at least one of the reference points between at least two first images of the heart tissue; and
- assessing a viability of the heart tissue.